

**Amendment and Response**

Applicant: James A. Matthews

Serial No.: 10/632,167

Filed: July 30, 2003

Docket No.: 10030278-1

Title: INTEGRATED OPTICAL DETECTOR AND DIFFRACTIVE OPTICAL ELEMENT

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**IN THE CLAIMS**

Please cancel claims 2, 3, 8, 9, and 12-18 without prejudice.

Please add claims 20-23.

Please amend claims 1, 4, 7, 10, and 11 as follows:

1. (Currently Amended) An apparatus, comprising:  
a substrate; and  
a diffractive optical element including:  
a plurality of stacked layers of optically transmissive material formed on the substrate,  
wherein at least one of the layers of optically transmissive material is a sensing element that  
is responsive to incident light, including at least one layer of optically transmissive material  
formed over the substrate; and  
an optical device formed over the substrate.
2. (Cancelled)
3. (Cancelled)
4. (Currently Amended) The apparatus as in claim 3, further comprising:  
a light source positioned to transmit light through the ~~sensing element and plurality of~~  
stacked layers of optically transmissive material of the diffractive optical element.
5. (Original) The apparatus as in claim 4, further comprising:  
a control circuit coupled to the sensing element for measuring the response of the  
sensing element to incident light, and for controlling the light source.
6. (Original) The apparatus as in claim 5, wherein the light source is a laser.
7. (Currently Amended) The apparatus as in claim ~~3~~1, wherein the resistance of the  
sensing element is responsive to incident light.

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8. (Cancelled)

9. (Cancelled)

10. (Currently Amended) The apparatus as in claim ~~7~~1, further comprising:  
a first and second contact on the sensing element for measuring the resistance of the sensing element.

11. (Currently Amended) The apparatus as in claim ~~10~~1, wherein the optically transmissive material includes a semiconductor.

12.-18 (Cancelled)

19. (Original) The apparatus as in claim 1, wherein the temperature of the sensing element is responsive to light.

20. (New) The apparatus as in claim 1, wherein at least two of the layers of optically transmissive material are sensing elements that are responsive to incident light.

21. (New) The apparatus as in claim 1, wherein at least two adjacent layers of optically transmissive material are sensing elements that are responsive to incident light.

22. (New) The apparatus as in claim 1, wherein at least two non-adjacent layers of optically transmissive material are sensing elements that are responsive to incident light.

23. (New) The apparatus as in claim 1, wherein all of the layers of optically transmissive material are sensing elements that are responsive to incident light.